UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,651	02/14/2002	Jeremy Alan Arnold	ROC920010318US1	9372

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EXAMINER
WU, YICUN

ART UNIT	PAPER NUMBER
2165	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/075,651	ARNOLD ET AL.
	Examiner	Art Unit	
	Yicun Wu	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 May 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
     closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-45</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>11 and 43-45</u> is/are allowed.

6)☒ Claim(s) <u>1-10, 12-27 and 29-42</u> is/are rejected.

7)☒ Claim(s) <u>28</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____.
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5) ☐ Notice of Informal Patent Application (PTO-152)
      Paper No(s)/Mail Date _____.   6) ☐ Other: _____.

III. DETAILED ACTION

1. Claims 1-45 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which

forms the basis for all obviousness rejections set forth in this

Office action:

> A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the
> differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the
> art to which the subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made. ·

3. Claims 1-10, 12-27 and 29-43 are rejected under 35 U.S.C.

103(a) as being unpatentable over Probert, Jr. et al. (U.S.

Patent No. 6,745,176) in view of Khoyi et al. (U.S. Patent No.

5,226,161).

As to claims 1 and 12, Probert, Jr. et al. discloses an

apparatus comprising:

at least one processor (fig. 1);

a memory coupled to the at least one processor (fig. 1);

and

a database optimizer residing in the memory and executed by

the at least one processor (i.e. monitor access requests. Fig.

5),

the database optimizer using statistics (i.e. statistics.

Fig. 5) regarding the type of applications accessing data in a

database (i.e. format. Fig. 5),

the frequency with which the applications access the data

(i.e. statistics. Fig. 5), and

data being accessed by the applications to make at least

one change to the database schema (i.e. generate docfile

allocation structures. Fig. 4) to optimize the performance of

accessing data in the database (fig. 4).

Probert, Jr. et al. does not explicitly teach the location

of the data.

Khoyi et al. teaches the location of the data (col. 11,

lines 20-25 and col. 3, lines 10-40).

Therefore, it would have been obvious to a person having

ordinary skill in the art at the time the invention was made to

have modified Probert, Jr. et al. with the location of the data.

It would have been obvious to a person having ordinary

skill in the art at the time the invention was made to have

modified Probert, Jr. et al. by the teaching of Khoyi et al.

because providing the location of the data allows addition of

new applications and data types if they do not fit within the

applications and data types initially envisioned and defined as

taught by Khoyi et al. (col. 2, lines 10-17).

As to claims 2 and 14, Probert, Jr. et al. as modified

teaches an apparatus wherein

the database optimizer makes the change to the database

schema according to a set of rules that specify a preferred data

type for each type of application accessing data in the database

(i.e. docfile and NSS format. Probert, Jr. et al. Fig. 4).

As to claims 3 and 15, Probert, Jr. et al. as modified

teaches an apparatus wherein the change to the database schema

comprises

changing the data type of at least one column in the

database (i.e. docfile and NSS format. Probert, Jr. et al. Fig.

4).

As to claims 4 and 16, Probert, Jr. et al. as modified

teaches an apparatus wherein the change to the database schema

comprises

adding a new column of a second data type to the database that contains the same data in an existing column of a first data type in the database (i.e. docfile and NSS format. Probert, Jr. et al. Fig. 4).

As to claims 5 and 17, Probert, Jr. et al. as modified teaches an apparatus wherein the database optimizer further comprises

a data coherency mechanism for maintaining data coherency between the existing column and the new column (i.e. link. Khoyi et al. col. 3, lines 10-40).

As to claim 6, Probert, Jr. et al. as modified teaches an apparatus wherein

the database optimizer receives requests from at least one application to access data in the database (Probert, Jr. et al. Col. 3, lines 15-25), and

returns data from the database of a data type that is expected by the requesting application (i.e. format a program expects. Probert, Jr. et al. Col. 3, lines 15-25).

As to claim 7 and 19, Probert, Jr. et al. as modified

teaches an apparatus wherein the database optimizer further

comprises

a run time statistics gathering mechanism to gather the

statistics (i.e. statistics. Fig. 5).

As to claims 8 and 18, Probert, Jr. et al. as modified

teaches an apparatus wherein the database optimizer operates

according to customization settings set by a human user

(Probert, Jr. et al. Fig. 1, 5 and col. 6, lines 30-35).

As to claim 9, Probert, Jr. et al. as modified teaches an

apparatus wherein the database optimizer further comprises

a data type conversion mechanism that converts data in a

first data type retrieved from the database to a second data

type that is preferred by an application requesting the data

(i.e. docfile and NSS format. Probert, Jr. et al. Fig. 4).

5.   As to claims 10, 20-27 and 29-42, the limitations of these

claims have been noted in the rejection above. They are

therefore rejected as set forth above.

Allowable subject Matter

6.   Claims 11 and 43-45 are allowed over the prior art made of
record.

7.   Claim 28 is objected to as being dependent upon a rejected
base claim, but would be allowable if rewritten in independent
form including all of the limitations of the base claim and any
intervening claims.

8.   The following is a statement of reasons for the indication
of allowable subject matter:

      The prior art of record (Probert, Jr. et al. (U.S. Patent
No. 6,745,176) and Khoyi et al. (U.S. Patent No. 5,226,161) does
not disclose, teach or suggest the claimed limitations of (in
combination with all other features in the claims):

      if the statistics indicate that a selected type of
application has a number of accesses to a selected column of a
first data type in the database that exceeds a first threshold
level, the data optimizer determines whether the statistics
indicate that the selected type of application has a number of
accesses to the selected column that exceeds a second threshold

level, and if not, the data optimizer adds a new column of a

second data type to the database that contains the same data in

the selected column, the selected column and the new column

being defined as reflective columns because they contain the

same data in different data types;

wherein the data optimizer detects when one of the

plurality of applications requests access to data in the

selected column, determines the preferred data type for the

requesting application, determines if the data in the selected

column is of the preferred data type for the requesting

application, and if the data in the selected column is of the

preferred data type for the requesting application, returning

the data in the selected column to the requesting application,

as claimed in claim 11.

The prior art of record (Probert, Jr. et al. (U.S. Patent

No. 6,745,176) and Khoyi et al. (U.S. Patent No. 5,226,161) does

not disclose, teach or suggest the claimed limitations of (in

combination with all other features in the claims):

if the statistics indicate that a selected type of

application has a number of accesses to a selected column of a

first data type in the database that exceeds a first threshold

level, the data optimizer determines whether the statistics

indicate that the selected type of application has a number of
accesses to the selected column that exceeds a second threshold
level, and if not, the data optimizer adds a new column of a
second data type to the database that contains the same data in
the selected column, the selected column and the new column
being defined as reflective columns because they contain the
same data in different data types;

wherein the data optimizer detects when one of the
plurality of applications requests access to data in the
selected column, determines the preferred data type for the
requesting application, determines if the data in the selected
column is of the preferred data type for the requesting
application, and if the data in the selected column is of the
preferred data type for the requesting application, returning
the data in the selected column to the requesting application;
if the data in any column reflective of the selected column is
of the preferred data type for the requesting application, the
database optimizer returns the data from the reflective column
to the requesting application, as claimed in claim 43.

The prior art of record (Probert, Jr. et al. (U.S. Patent
No. 6,745,176) and Khoyi et al. (U.S. Patent No. 5,226,161) does

not disclose, teach or suggest the claimed limitations of (in

combination with all other features in the claims):

determining the preferred data type for the requesting

application; determining if the data in the selected column is

of the preferred data type for the requesting application;

if the data in the selected column is of the preferred data type

for the requesting application, returning the data in the

selected column to the requesting application; determining if

the data in any column reflective of the selected column is of

the preferred data type for the requesting application; if the

data in a reflective column is of the preferred data type for

the requesting application, returning the data from the

reflective column to the requesting application; if the data in

the selected column and in all reflective columns, if any, is

not of the preferred data type for the requesting application,

performing the steps of: converting the data to the preferred

data type for the requesting application; and returning the

converted data to the requesting application as claimed in claim

28.

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yicun Wu whose telephone number is 703-305-4889. The examiner can normally be reached on 8:00 am to 4:30 pm, Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 703-305-3830. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-746-7240 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Yicun Wu   CHARLES RONES
Patent Examiner   PRIMARY EXAMINER
Technology Center 2100

June 20, 2005